Psychological interventions for arthritis pain management in adults: a meta-analysis

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CRD summary
This review concluded that psychosocial interventions may have significant effects beyond those of standard medical care on pain and other outcomes in adults with osteoarthritis or rheumatoid arthritis. However, the review methods were unclear and there were problems with the analysis which may affect the reliability of the pooled effect sizes. The conclusions should therefore be interpreted cautiously.

Authors' objectives
To evaluate the effects of psychosocial interventions for the treatment of pain in adults with arthritis.

Searching
EMBASE, MEDLINE, PsycINFO and the Cochrane Controlled Trials Register were searched up to June 2006; the search terms were reported. The reference lists of retrieved articles were also checked for additional studies, but only studies published in English were eligible for inclusion. Dissertation studies were also excluded from the review.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion in the review.

Specific interventions included in the review
Studies of psychosocial interventions aimed at managing arthritis pain were eligible for inclusion. The psychosocial interventions included cognitive-behavioural therapy (CBT)/pain-coping skills training, biofeedback, stress management, emotional disclosure, hypnosis and psychodynamic therapy. Definitions were reported for each intervention. The mean number of treatment sessions was 8.5 (range: 4 to 20), the average length of a session was 86 minutes (range: 15 to 120), and the amount of time from the beginning to the end of the treatment phase was 59.6 days (range: 4 to 168). The authors did not specify what comparators were eligible; the included comparators were mainly usual care, followed by an education/information control, waiting-list control, attention control and medication control.

Participants included in the review
Studies including adults (at least 18 years old) with a diagnosis of osteoarthritis (OA) and/or rheumatoid arthritis (RA) were eligible for inclusion. Where reported, the mean age of the included participants was 58.9 years, 69.5% of the participants were female and 81% were Caucasian. The majority (18) of the included studies were carried out in RA patients; 2 studies included both RA and OA patients and 7 studies were in OA patients only.

Outcomes assessed in the review
Eligible studies had to primarily assess self-reported pain. Secondary pain-related outcome measures were categorised as psychological (i.e. anxiety, depression, psychological disability, active coping and pain management self-efficacy), physical (i.e. physical ability, fatigue, stiffness) or biological (i.e. joint swelling, disease activity). The most commonly used outcome measure for pain was a visual analogue scale (VAS).

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
Internal study validity was assessed according to an adapted Jadad scale with ‘1’ or ‘0’ points being awarded for each of the following: randomisation, description or appropriateness of randomisation, and the reporting of withdrawals or drop-outs. Studies were awarded a maximum overall score of up to 3 points, with those studies scoring 2 or more points deemed to be of a high quality. External validity was assessed according to the following criteria: clear description of population; description of provider training; standardisation of treatment; clear description of study methods; and adequately reported outcome data. Studies were awarded a maximum overall score of up to 5 points, with those studies...
scoring 3 or more points deemed to be of a high quality.

The authors did not report how many reviewers carried out the validity assessment.

**Data extraction**
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Study data were only included in the analysis if means and standard deviations could be calculated. A standardised scoring system was developed to allow comparisons across different outcome measures. In studies with multiple outcome measures, the measures most closely approximating the standardised global measure were included in the review. Effect sizes were estimated for each study using Hedges’ g (means with 95% confidence intervals, CIs).

**Methods of synthesis**

How were the studies combined?
The effect sizes were combined in a fixed-effect analyses.

How were differences between studies investigated?
Differences were investigated using the chi-squared test. Studies were also grouped according to outcome measure. For the outcome of pain, studies were grouped according to arthritis type (OA or RA); given that the two patient groups gave similar effect sizes they were combined together in all the remaining analyses.

**Results of the review**

Twenty-seven RCTs (n=3,409) were included.

**Pain.**

Patients receiving a psychosocial intervention reported significantly lower levels of pain post-treatment than those receiving a control condition (effect size 0.177, 95% CI: 0.094, 0.259; 15 studies, 20 data sets). When only those studies reporting VAS data were combined, the effect size was 0.162 (95% CI: 0.067, 0.257; 9 studies). The effect sizes for OA and RA patients were similar.

**Psychosocial functioning.**

In comparison with those receiving control conditions, patients receiving a psychosocial intervention reported significantly lower post-treatment anxiety (effect size 0.282, 95% CI: 0.110, 0.455; 5 studies), depression (effect size 0.208, 95% CI: 0.052, 0.363; 7 studies, 8 data sets) and psychological disability (effect size 0.249, 95% CI: 0.101, 0.396; 6 studies, 9 data sets). Psychosocial interventions were also associated with higher levels of active coping (effect size 0.716, 95% CI: 0.490, 0.941; 5 studies, 8 data sets) and post-treatment self-efficacy pain scores (effect size 0.184, 95% CI: 0.031, 0.336; 4 studies, 6 data sets).

**Physical functioning.**

Patients receiving a psychosocial intervention reported significantly lower post-treatment physical disability in comparison with control conditions (effect size 0.152, 95% CI: 0.062, 0.242; 11 studies, 13 data sets). However, there were no significant differences between psychosocial interventions and controls in terms of fatigue (2 studies) and stiffness (3 studies).

**Biological outcomes.**

In comparison with those receiving control conditions, patients receiving a psychosocial intervention reported significantly lower levels of joint swelling post-treatment (effect size 0.349, 95% CI: 0.105, 0.593; 4 studies, 5 data sets).
Authors' conclusions
Psychosocial interventions may have significant effects on pain and other outcomes in arthritis patients. Evidence suggested that these beneficial effects were beyond those of standard medical care.

CRD commentary
This review answered a clear research question. It is difficult, however, to assess the potential for error and bias in the review since the authors did not report their methods and appear not to have specifically searched for unpublished studies. It does appear that some studies might have been missed through the exclusion of those not published in English, so there is a risk of language and also possibly publication bias. The authors did, however, assess the internal and external validity of the studies, which appeared in the majority of cases to be high.

There were several issues in the analyses which might have affected their reliability. First, there appeared to be a number of differences between the studies in terms of patient characteristics, outcome measures and interventions, which may affect the reliability of the pooled effect sizes. Second, the reliability of the findings may be affected by the duplication of control group data in analyses with studies evaluating multiple interventions. Third, the pooled effect sizes relied heavily on data that had been converted into a standardised global measure rather than using the actual outcome measures reported in the original studies. Taking all of these issues into account, the reliability of the findings is questionable and caution is advised when interpreting the review's conclusions.

Implications of the review for practice and research
Practice: The authors stated that multi-sessional psychosocial interventions should be considered for the treatment of patients with OA and/or RA.

Research: The authors stated that future studies should use validated and standardised outcome measures for arthritis pain, in addition to including measures of pain coping and other outcomes such as physical functioning, disease activity and health care utilisation.

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